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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,302	03/24/2004	Satoshi Masumi	08830.0016	3817

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EXAMINER

LIANG, LEONARD S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>10/807,302</p>	<p>Applicant(s)</p> <p>MASUMI ET AL.</p>	
	<p>Examiner</p> <p>Leonard S. Liang</p>	<p>Art Unit</p> <p>2853</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-23 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date <u>11/16/04</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|--|---|

DETAILED ACTION

Specification and Drawings

The lengthy specification and drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and drawings. Specifically, the applicant is required to match all references in the drawings to the references in the specification.

Claim Objections

Claim 12 is objected to because of the following informalities: Claim 12 discloses "a second heating **sectioin** which heats the ultraviolet-ray curable ink on the recording medium after **an** heating process..." This represents a spelling error as well as a grammar error. It will be construed that the claim should state "a second heating section which heats the ultraviolet-ray curable ink on the recording medium after a heating process..."

Claim 13 is objected to because of the following informalities: Claim 13 discloses a third heating section. However, claim 1, on which claim 13 depends does not disclose a second heating section. Claim 12 does disclose a second heating section. It will be construed that claim 13 should depend from claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 10-11, 14, 18, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5936008).

Jones et al discloses:

- {claim 1} An image recording device comprising a recording head which discharges an ultraviolet-ray curable ink, which is cured as irradiated with ultraviolet rays; an ultraviolet light source which generates ultraviolet rays to cure the ultraviolet-ray curable ink; a first heating section which heats the ultraviolet-ray curable ink on a recording medium after an irradiation of the ultraviolet rays; a pressure section which pressurizes the recording medium after an irradiation of the ultraviolet rays (column 5, lines 9-21 discloses an ink jet printing process that can incorporate a hybrid method of drying and fusing an ink image. Given that UV curing is one means of drying disclosed and fusing using a heated pressure roller is disclosed as the fusing method, the claimed invention is naturally suggested)
- {claim 10} wherein the heating section is used as the pressure section (column 5, line 19)
- {claim 11} wherein a heating process of the heating section and a pressurize process of the pressure section is overlapped (column 5, line 19)
- {claim 18} An image recording device comprising a recording head which discharges an ultraviolet-ray curable ink, which is cured as irradiated with

ultraviolet rays; an ultraviolet light source which generates ultraviolet rays to cure the ultraviolet-ray curable ink; a first heating section which heats the ultraviolet-ray curable ink on a recording medium after an irradiation of the ultraviolet rays; a pressure section which pressurizes the recording medium after an irradiation of the ultraviolet rays (column 5, lines 9-21 discloses an ink jet printing process that can incorporate a hybrid method of drying and fusing an ink image. Given that UV curing is one means of drying disclosed and fusing using a heated pressure roller is disclosed as the fusing method, the claimed invention is naturally suggested)

- {claims 22-23} the ultraviolet-ray curable ink is water-base ink (abstract)

Jones et al differs from the claimed invention in that it does not explicitly disclose:

- {claim 1} a controller which controls the first heating section to start heating the ultraviolet-ray curable ink on the recording medium after the last discharge of the ink to an arbitrary area on the recording medium, a first predetermined area on the recording medium, a first predetermined time between the last discharge and the starting heat is predetermined, and controls the first heating section to heat the ultraviolet-ray curable ink within a second predetermined time
- {claim 14} a moving section which relatively moves the recording medium to the first heating section
- {claim 18} a controller which controls the first heating section to start heating the ultraviolet-ray curable ink on the recording medium after the last discharge of the

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ink to an arbitrary area on the recording medium; and a moving section which relatively moves the recording medium to the first heating section

Though Jones et al does not explicitly disclose a controller and a moving section, they are naturally suggested in the disclosed ink jet printing process and necessarily present or else the disclosed drying and fusing of the ink could not occur.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of providing archival print quality comparable to that obtained in xerographic toner development systems (column 1, lines 10-12).

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5936008), as applied to claim 1 above, and further in view of Okubo et al (US Pat 6092891).

Jones et al teaches all limitations of the claimed invention except for the following:

- {claim 2} wherein the first predetermined time is in a range between 0.1 and 120 seconds
- {claim 3} wherein the second predetermined time is in a range between 0.1 and 10 seconds

Okubo et al discloses a fixing speed of one A4-sized recording sheet per minute with a conveying speed of 5 mm/sec to 10 mm/sec.

This necessarily implies that the first predetermined time is in a range between 0.1 and 120 seconds and the second predetermined time is in a range between 0.1 and 10 seconds, since the claimed invention is directed to fixing ink at a point and not the whole sheet.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Okubo et al into the invention of Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of quickly and efficiently fixing an image.

Claims 4, 7, 15-17, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5936008), as applied to claim 1 above, and further in view of Miyamoto et al (US PgPub 20030137572).

Jones et al teaches all limitations of the claimed invention except for the following:

- {claim 4} wherein the controller changes a heat quantity, which is applied to the ink by the heating section, in accordance with kinds of recording medium to be recorded
- {claim 7} wherein the controller changes a heat quantity, which is applied to the ink by the heating section, in accordance with recording conditions
- {claims 15 and 19} wherein the moving section includes: a pair of rollers which moves the recording medium to the first heating section, wherein one of the rollers is used as the heating section, and the other is used as the pressure section
- {claims 16 and 20} wherein the moving section includes: a roller and a belt which move the recording medium to the first heating section, wherein one of the roller

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and the belt is used as the heating section, and the other is used as the pressure section

- {claims 17 and 21} wherein the moving section includes: a pair of belts which moves the recording medium to the first heating section, wherein one of the belts is used as the heating section, and the other is used as the pressure section

Miyamoto et al discloses:

- {claim 4} wherein the controller changes a heat quantity, which is applied to the ink by the heating section, in accordance with kinds of recording medium to be recorded (naturally suggested in view of paragraph 0042 which discloses controlling heat and pressure in view of medium type)
- {claim 7} wherein the controller changes a heat quantity, which is applied to the ink by the heating section, in accordance with recording conditions (naturally suggested in view of paragraph 0042; medium type is considered a recording condition)
- {claims 15 and 19} wherein the moving section includes: a pair of rollers which moves the recording medium to the first heating section, wherein one of the rollers is used as the heating section, and the other is used as the pressure section (figure 6, reference 3)
- {claims 16 and 20} wherein the moving section includes: a roller and a belt which move the recording medium to the first heating section, wherein one of the roller and the belt is used as the heating section, and the other is used as the pressure section (figure 13)

- {claims 17 and 21} wherein the moving section includes: a pair of belts which moves the recording medium to the first heating section, wherein one of the belts is used as the heating section, and the other is used as the pressure section (figure 11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Miyamoto et al into the invention of Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of transporting the medium to a place where heating can be controllably be applied to the medium based on recording conditions, such as media type.

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5936008) in view of Miyamoto et al (US PgPub 20030137572), as applied to claims 4 and 7, and further in view of Ward et al (US Pat 6149327).

Jones et al, as modified, teaches all limitations of the claimed invention except for the following:

- {claim 5} wherein the controller changes the second predetermined time in accordance with kinds of recording medium to be recorded
- {claim 8} wherein the controller changes the second predetermined time in accordance with recording conditions

Ward et al discloses, with respect to claims 5 and 8, controlling drying time based on factors such as temperature, humidity, media type, print quality, and ink drop volume (abstract; this naturally includes the second predetermined time).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ward et al into the teachings of modified Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of optimizing drying time for improved printing performance.

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al (US Pat 5936008), as applied to claim 1, and further in view of Ward et al (US Pat 6149327).

Jones et al teaches all limitations of the claimed invention except for the following:

- {claim 6} wherein the controller changes the first predetermined time in accordance with kinds of recording medium to be recorded
- {claim 9} wherein the controller changes the first predetermined time in accordance with recording conditions

Ward et al discloses, with respect to claims 6 and 9, controlling drying time based on factors such as temperature, humidity, media type, print quality, and ink drop volume (abstract; this naturally includes the first predetermined time).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ward et al into the teachings of modified Jones et al. The motivation for the skilled artisan in doing so is to gain the benefit of optimizing drying time for improved printing performance.

Allowable Subject Matter

Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 12 discloses "a second heating section which heats the ultraviolet-ray curable ink on the recording medium after an heating process of the first heating section," which was not found, taught, or disclosed in the prior arts.

Claim 13 depends from objected claim 12.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takeoka (JP Pat 2003072239 A) discloses a method for double-side recording image.

Kaga et al (US PgPub 20020008747) discloses an image forming method.

Sasaki (JP Pat 01026486) discloses a thermal transfer ink sheet.

Matsumoto et al (US Pat 6523948) discloses an ink jet printer and ink jet printing method.

Sugaya et al (US Pat 6820975) discloses an inkjet recording apparatus and inkjet recording method.

Takahashi et al (US Pat 5502464) discloses a fixater and recording apparatus using the same.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MANISH S. SHAH
PRIMARY EXAMINER

4/3/06